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A Bibliometric Analysis of Media Convergence in the Twenty-first Century: Current Status, Hotspots, and Trends

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Abstract

Media convergence has transformed how people access information and interact with technology, obscuring the lines between traditional and digital media while reshaping societal communication and cognitive frameworks. This study conducts a bibliometric analysis of 274 academic papers published between 2000 and 2024, focusing on the keyword "media convergence." Using VOSviewer and CiteSpace software, we examined the research landscape, including publication volume, source journals, research areas, countries, affiliations, and authors. Keyword co-occurrence, clustering, and emergence analysis revealed five primary research areas: (i) Media Convergence and Journalism Studies; (ii) Digital and Social Media Studies; (iii) Internet and Online Interaction Studies; (iv) Cultural and Regional Studies; and (v) Entertainment Studies. The development of media convergence research was categorized into three phases: (i) an initial focus on core communication theories and the emergence of new media (2000–2009); (ii) the integration of new media and traditional journalism driven by widespread Internet adoption (2010–2018); and (iii) recent explorations of cross-platform communication and artificial intelligence (2019–2024). This study offers valuable insights into the evolution of media convergence research and outlines potential future directions, providing a foundation for further comprehensive investigations.

Keywords: media convergence, bibliometric analysis, communication, VOSviewer, CiteSpace

1. Introduction

With the rapid advancement of digital technology, media systems are increasingly moving toward multifunctional integration, where diverse forms are gradually converging. This evolution has given rise to innovative content creation and business models, with cross-media consumption across multiple platforms and channels progressively replacing traditional single-medium consumption. As a pivotal concept, "media convergence" significantly shapes how people understand the transformations in media and communication industries (Dwyer, 2010, p. 3). The idea of convergence was introduced as early as 1983, when Pool (1983, p. 23) described the "convergence of modes," emphasizing how the boundaries between different media, and even between point-to-point communication (e.g., mail, telephone, telegraph) and mass communication (e.g., newspapers, radio, television), were becoming increasingly blurred. Over the past four decades, interest in media convergence has only grown. From practical applications to academic discourse, the concept has flourished worldwide. Since the early 21st century, the rapid development of digital technology and the widespread adoption of mobile Internet have further diminished distinctions between traditional and new media. This has fostered a communication landscape that spans multiple platforms, devices, and media formats. Emerging technologies such as social media, streaming services, virtual reality, and augmented reality have transformed information dissemination models and redefined the media ecosystem. As a result, media convergence has not only revolutionized how people access information and communicate but has also profoundly reshaped the operational frameworks and market dynamics of the media industry.

Recent academic research on media convergence has delved into various areas, including technological integration, content production, audience behavior, policy regulation, and interdisciplinary approaches. Several studies have focused on the technical dimensions of media convergence. For instance, Si et al. (2023) proposed a method leveraging media convergence and graph convolutional encoder clustering (MCGEC) to analyze clinical data in traditional Chinese medicine. Xu and Cao (2023) discussed the integration and processing of multisource data, highlighting its critical role

in the evolution of media convergence and the challenges it presents. Similarly, Hu et al. (2024) proposes a blockchain-based Convergence Media Ecology Model (CMEM-BC) to establish a decentralized, traceable, and immutable media ecosystem by focusing on its core elements, operational systems, management mechanisms, value circulation, and storage frameworks.

Discussions on content production in the context of media convergence have focused on innovative approaches to converge production and content creation. Examples include analyses of Netflix series (Perez, 2023), news content on Douyin (Zhao & Ye, 2023), online remakes of television documentaries (Qu, 2023), Facebook radio (Ajetunmobi & Lasisi, 2022), and multiscreen television (Lin & Oranop, 2016). Audience research has primarily examined behavioral changes among users in response to media convergence. For instance, Wang, Li, Liu, and Habes (2023) studied the usage patterns, motivations, and preferences of rural TikTok users within the framework of media convergence. Balsebre-Torroja, Ortiz-Sobrino, and Soengas-Perez (2023) analyzed new listening habits emerging from media convergence through audience data. Skripcova and Hladikova (2022) investigated how media and technological convergence have influenced younger audiences, while Gruner and Power (2018) used social media activity metrics to evaluate business-to-business (B2B) audience engagement across 208 large Australian organizations. Policy and regulatory studies have also been central to the discourse, addressing decision-making and regulatory frameworks in media convergence (Humphreys & Simpson, 2018; Sukmayadi, 2019; Yang, 2016). Interdisciplinary research has remained a prominent focus, exploring areas such as the intersection of Internet communication and sports psychology (Pan, 2023), the integration of social media in clinical research (Goldberg et al., 2022), and the convergence of social media with intelligent teaching practices (Barfi, Bervell, & Arkorful, 2021).

Understanding the research landscape of media convergence is essential for both media industry professionals and researchers. Although existing studies provide valuable insights, they are often fragmented and lack systematic classification and synthesis. To address this, this study employs bibliometric methods to analyze and summarize academic papers on media convergence from the twenty-first century. It aims to identify research hotspots and emerging trends, evaluate influential authors and journals, map research collaboration networks and academic exchanges, investigate interdisciplinary convergence, highlight research gaps, and envision future directions for the field. By clarifying current research areas, this study provides valuable guidance for exploring new opportunities and fostering potential collaborations.

Accordingly, this study proposes the following research questions:

RQ1: What is the current state of media convergence research?

RQ2: What are the research hotspots and key areas in media convergence?

RQ3: What is the historical development and future trend of media convergence research?

2. Methodology

Bibliometrics, introduced in the early 1900s and established as an independent discipline in 1969 (Pritchard, 1969), has been widely applied to literature analysis (Diem & Wolter, 2013). Bibliometric involves the quantitative review and investigation of existing literature within a specific field. Thus, by assessing and categorizing bibliographic materials, bibliometric analysis generates a comprehensive summary of the available research (Mayr & Scharnhorst, 2015). The process includes collecting data on authors, keywords, journals, countries, affiliations, and references, which facilitates the exploration of research developments, including themes and publications, across social, cognitive, and theoretical frameworks (Filho, Coelho, Muniz, & Barbosa, 2022; Verma & Gustafsson, 2020). Bibliometric analysis offers a developmental overview of a field, providing valuable insights into its growth and evolution.

The Web of Science Core Collection is a highly regarded digital database widely used by researchers worldwide, rendering it useful as a leading resource for retrieving and analyzing diverse types of publications (Ding & Yang, 2022). This database encompasses an extensive range of disciplines, including over 15,000 journals and 50 million categorized publications spanning 251 categories and 150 research areas (Merigó & Yang, 2017).

Figure 1 presents the study's selection process as outlined in the research protocol. The "Web of Science Core Collection" database was used to identify studies related to media convergence, employing the search query TS=("media convergence" OR "media integration" OR "media fusion") for the period 2000 to 2024. The search was limited to English-language publications, journal sources, and articles as the document type, resulting in an initial pool of 534 documents. After excluding 256 retracted or irrelevant articles, a final set of 274 papers was selected for analysis.

Quantitative analysis was used to construct knowledge maps using VOSviewer and CiteSpace software. A probabilistic data normalization method is utilized by VOSviewer, offering multiple visualization perspectives, including keywords, co-authorship, and institutional collaboration (Van Eck & Waltman, 2010). However, set theory is employed by CiteSpace for data normalization to assess the similarity of knowledge units. Timeline views are provided by CiteSpace,

illustrating the historical scope, developmental trajectory, and trends in media convergence literature (Chen, 2006).

Given below are the specific steps of this study: (i) VOSviewer was used for elementary statistical analysis, generating descriptive statistics to examine the present state of media convergence research; (ii) CiteSpace was used for keyword co-occurrence, clustering, and emergence analysis to identify research hotspots and key focuses in the media convergence field. Finally, we summarized the abovementioned information and concluded the historical development and trends of media convergence research.

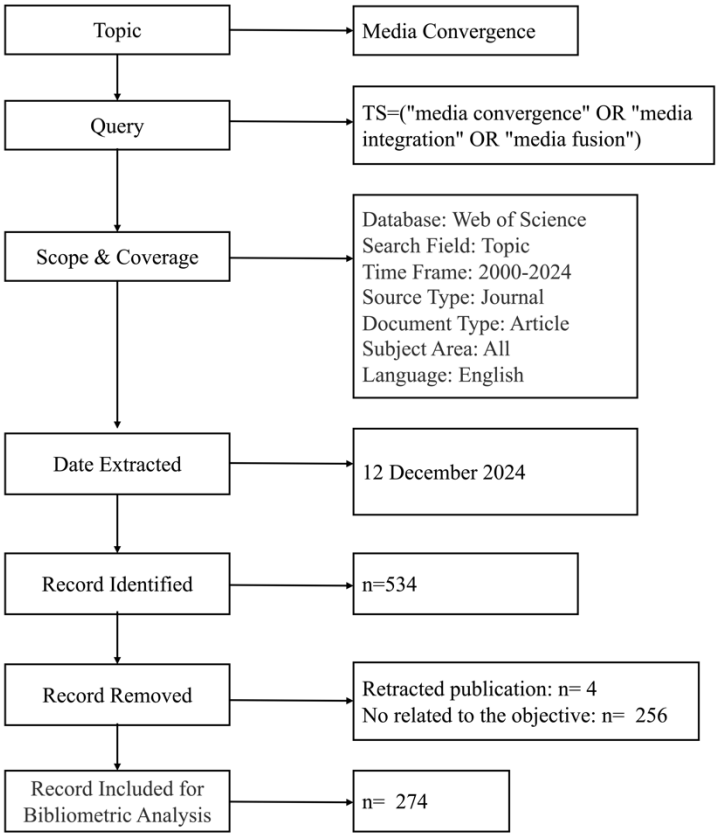

Figure 1. Study selection flowchart

3. Results

3.1 Analysis of the Current State of Research

The search and filtering process conducted in this study resulted in a sample of 274 papers. These publications were authored by 533 researchers from 352 institutions across 63 countries, published in 199 journals, and cited a total of 10,528 references.

Table 1. Basic research information

Criteria	Quantity
Articles	274
Authors	533
Journals	199
Institutions	352
Countries	63
Cited references	10528

3.1.1 Analysis of Annual Publication Trends

Media convergence began attracting academic attention in the 1980s and 1990s. However, nearly two decades after Pool's (1983) concept of the "convergence of modes," the number of academic papers on media convergence in the Web

of Science Core Collection remained limited, with only 18 publications. These early studies focused on the integration of media technologies, their impact on human communication, and the prediction of future trends in media and communication technologies (Davis, Hall, & Heath, 1994; Siu & Clark, 1989).

In the early twenty-first century, rapid advancements in digital technology and the Internet provided the foundation for media convergence. Digital technology enabled the seamless conversion of various types of media content into digital formats, facilitating editing, storage, and transmission. Meanwhile, the Internet emerged as a platform for efficiently aggregating and distributing diverse media content. As a result, the early 2000s are often regarded as the true onset of media convergence. Figure 2 illustrates the statistical trend in the number of media convergence-related research papers since 2000.

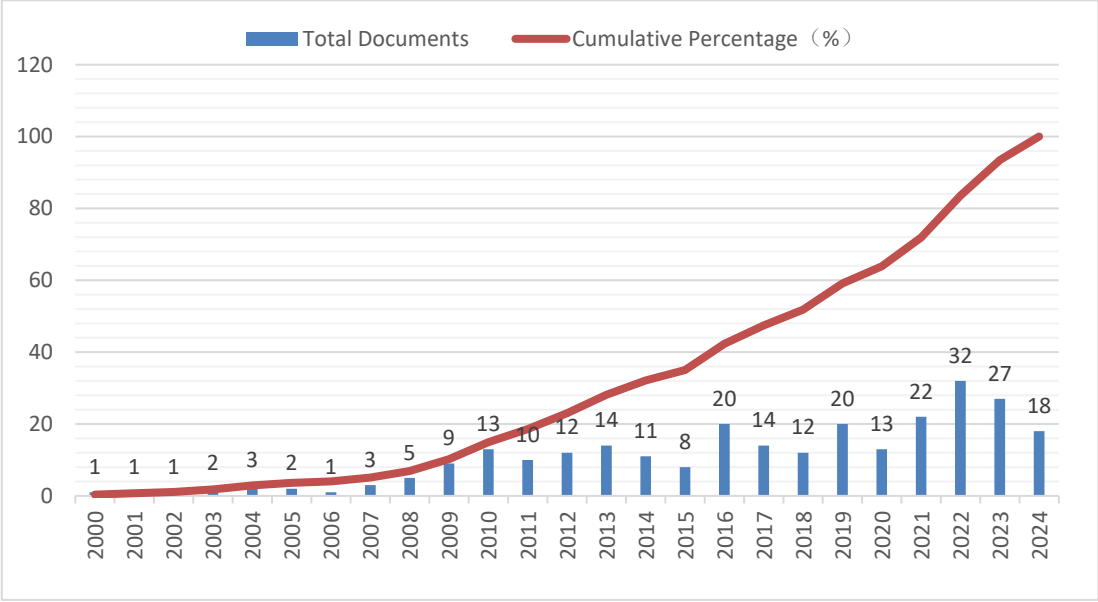

Figure 2. Bar chart of annual volume

3.1.2 Analysis of the Source Journals

Table 2 presents the top 10 journals ranked by the number of media convergence-related publications, with *Brazilian Journalism Research* leading with 8 papers. Seven other journals each published five or more relevant papers on media convergence. This study also identifies the most-cited publications in the Web of Science. Table 3 highlights the top 5 journals with the highest citation counts, with *Information Communication & Society* standing out, having published 3 papers with a net total of 178 citations.

Table 2. Top 5 most active source title

No	Source titles	Total Papers
1	Brazilian journalism research	8
2	Convergence the international journal of research into new media technologies	7
2	Media business and innovation	7
4	Development report on China s new media	5
4	Journalism practice	5
4	Online journal of communication and media technologies	5
4	Research series on the Chinese dream and Chinas development path	5
8	Media convergence handbook vol 2 firms and user perspectives	4
9	Information communication society	3
10	International Communication Gazette	3

Table 3. Top 5 most important sources

No	Source Titles	Total Papers	Citations
1	Information Communication & Society	3	178
2	Journal of Communication	1	161
3	Sociology of health & illness	1	153
4	Journalism practice	5	117
5	Business horizons	1	86

3.1.3 Publication by Research Areas

The media convergence research retrieved between January 1, 2000, and December 12, 2024, covers 45 distinct subjects. Table 4 presents the 10 most relevant subjects, with communication ranking highest, followed by film, radio, television, business, and computer science. Media convergence continues to be a prominent topic in the communication and film industries. The interplay between technological advancements and economic forces has made this field increasingly significant in technology and economics. This indicates that media convergence has evolved into an interdisciplinary research focus, encompassing areas ranging from communication theory to business models and technological innovation.

Table 4. Top 10 most relevant subjects

No	Research Areas	Research Areas Count
1	Communication	121
2	Film Radio Television	22
2	Business	21
4	Computer Science	18
5	Cultural Studies	14
6	Education Research	13
7	Social Sciences Interdisciplinary	13
8	Information Science Library Science	10
8	Sociology	10
10	Humanities Multidisciplinary	9

3.1.4 Country Scientific Production

Figure 3 presents a global overview of scientific output related to media convergence, visually illustrating the publication activity of various countries in this field. Table 5 highlights the top 10 countries based on their contributions to media convergence research, including their respective publication volumes. In total, 63 countries have contributed to the academic discourse on media convergence. The United States leads with 57 publications, followed closely by China with a total of 56, and the United Kingdom with 28, ranking as the top three contributors. Figure 4 depicts international academic collaboration in this area. When a threshold of at least 5 documents per country and a minimum of 0 citations was applied, only 14 countries met these criteria and were actively involved in collaborative media convergence research with other nations.

Table 5. Top 10 countries by article publication volume

No	Country	Frequency
1	USA	57
2	China	56
3	England	28
4	Spain	21
5	Australia	13
6	Brazil	10
6	Germany	9
8	Switzerland	8
9	India	7
10	Canada	6

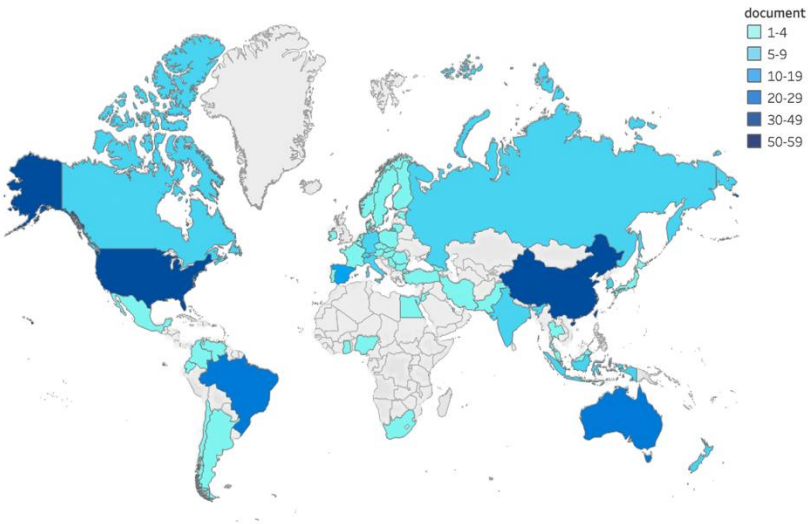

Figure 3. Country scientific production.

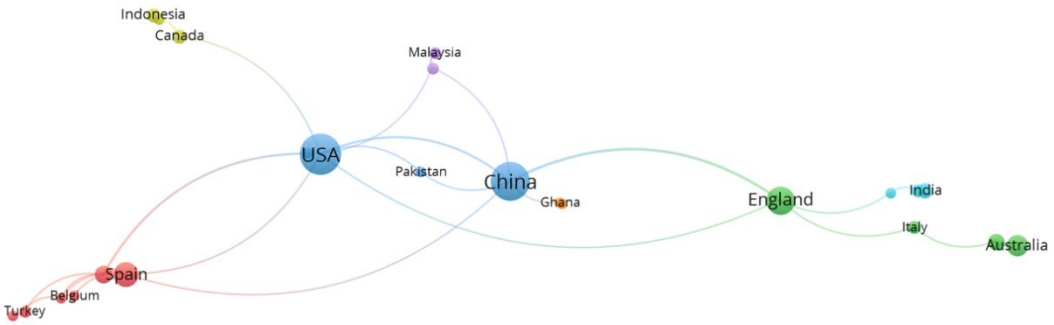

Figure 4. Network visualization of co-authorship by countries.

3.1.5 Publication by Affiliation

Table 6 highlights the top 10 institutions contributing to media convergence research in the twenty-first century. Curtin University (Australia) ranks first, followed by the University of London (UK), the University of Neuchâtel (Switzerland), and the University of Wisconsin System (United States). However, institutional collaboration in this field appears to be limited, as VOSviewer was unable to generate a well-defined network of collaboration between these institutions. This highlights the need for enhanced academic cooperation among institutions and researchers to advance media convergence research.

Table 6. Top 10 affiliations by article publication volume

Affiliation	Country	Count
Curtin university	Australia	5
University of London	UK	5
University of Neuchatel	Switzerland	5
University of Wisconsin System	USA	5
Communication of China	China	4
Massachusetts Institute of Technology	USA	4
University of Basque Country	Spain	4
University of Illinois System	USA	4
University of London	UK	4
University of Michigan	USA	4

3.1.6 Author Analysis

Key contributors in the field were identified by a detailed statistical analysis of the authorship in the reviewed literature showing that scholars have given varying levels of attention to specific research topics. This analysis also sheds light on emerging research trends and highlights the most prominent researchers driving academic discussions on media convergence and its associated topics. Among the 274 papers analyzed, a total of 533 authors were identified. Table 7 presents key information about the top 10 authors ranked by publication volume. In cases where the number of publications was identical, authors were ranked based on their citation counts. Dal Zotto Cinzia and Lugmayr Artur lead in publication volume, with four papers each; however, these papers have relatively low citation counts. However, Pablo J. Boczkowski stands out as the most-cited author, with two papers garnering a total of 200 citations. This disparity highlights an uneven distribution of influence within media convergence research. While some authors produce numerous publications, the academic impact of a small number of high-quality, widely cited papers remains significantly greater.

Table 7. Top 10 most relevant authors

Researcher's Name	Affiliation	publications	Interests
Dal Zotto, Cinzia	University of Neuchatel	4	Media management; human resource management
Lugmayr, Artur	Umea University	4	Data science and visualization; interactive media and media technology
Ibrus, Indrek	Tallinn University	3	Media innovation; media datafication
Boczkowski, Pablo J	Northwestern University	2	Media; journalism; technology
Jenkins, Henry	University of Southern California	2	Communication; cultural studies; film, radio and television
Kaltenbrunner, Andy	Austrian Academy of Sciences	2	Journalism research; media innovation
Simpson, Seamus	University of Simpson	2	Media and communication
Meier, Klaus	Catholic University Eichstätt-Ingolstadt	2	Digital journalism; journalism studies; media convergence
Erdal, Ivar John	Volda University College	2	Communication
Hackley, Chris	University of London	2	Communication; business & economics

3.2 Keywords Analysis

3.2.1 Co-occurrence Analysis

Co-occurrence refers to the phenomenon where two keywords appear together in the same document, often indicating a correlation between the associated concepts (Kent, Pandey, Kumar, & Haldar, 2020). To pinpoint the focal areas in media convergence research, a comprehensive analysis of data retrieved from the Web of Science database was conducted, focusing on the co-occurrence of keywords and terms within the titles and abstracts of the papers. Co-occurrence analysis and keyword evaluation were utilized in this study because keywords effectively encapsulate the core content of a paper, providing valuable insights into the primary themes and research trends (Comerio & Strozzi, 2019). Figure 5 presents the co-occurrence mapping of keywords in the literature, generated using CiteSpace. The analysis applied a one-year time slice, resulting in 390 nodes and 961 links, with a network density of 0.0127. The colors of the nodes and links transition from blue to red, indicating the temporal activity of the keywords: blue represents earlier years, closer to 2000, while red signifies more recent years, approaching 2024. The intensity of the color reflects the activity level of the node during the respective period.

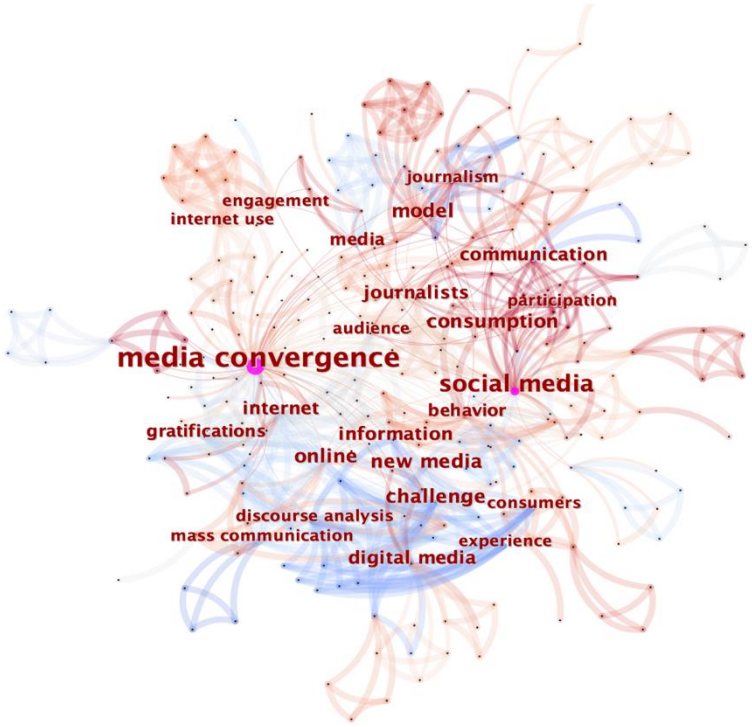

Figure 5. Keywords co-occurrence mapping

Table 8 presents detailed information on the top 10 keywords with the highest occurrence frequency and total link strength. The graphical representations in Figure 5, along with the co-occurrence values in Table 8 show that the primary keywords in media convergence research include "media convergence," "social media," and "journalism." These keywords are distinguished by their high frequency of use, extensive connections, and strong link strength.

Table 8. The top 15 high-frequency keywords co-occurrence values

No	Keyword	Occurrences	Total link strength
1	Media convergence	76	90
2	Social media	26	38
3	Journalism	23	38
4	Internet	15	28
5	New media	15	25
6	Television	12	23
7	Communication	10	20
8	Multimedia	9	18
9	Facebook	9	15
10	Technology	9	13
11	Model	9	11
12	News	8	13
13	China	7	12
14	Digital media	7	10
15	Information	7	9

The analysis also highlighted that, since the early twenty-first century, "media convergence" has emerged as a central concept, emphasizing the integration and interaction among various media platforms. The rise of new media, particularly social and digital media, not only provides a crucial context for the era of media convergence but has also become a key research focus. Studies have examined the pivotal role of new media in information dissemination and its transformative impact on traditional media ecosystems. Figure 5 indicates a shift in research attention from digital media to social media.

The evolution of journalism and television industries, viewed through the lens of media convergence, has been a major research topic. The application of multimedia technologies has fundamentally altered the production and distribution of news and television programs, allowing media content to be delivered more flexibly across multiple platforms. Further, technological innovations and audience behavior studies are vital areas within media convergence research. The former investigates how emerging technologies are reshaping media forms and communication methods, facilitating cross-platform dissemination and expanding content creation. The latter explores the evolving patterns of audience media consumption, information reception, and interaction with media, all within the framework of media convergence.

3.2.2 Keyword Cluster Analysis

The keyword clustering analysis systematically categorizes recurrent terms within a large body of literature, divulging the research hotspots and evolving trends in the field. This method enables not only condensing scattered research topics into a few core research directions but also comprehending cross-disciplinary intersections and the potential research opportunities they might offer. The study of media convergence identified 12 major clusters, represented by numbers #0 to #11 in the mapping; a smaller number denotes a cluster that comprises more keywords, and vice versa.

CiteSpace's clustering function was used to improve the accuracy of cluster identification. The Modularity Q value, which measures network modularity, was found to be 0.7313, indicating high-quality clustering in this study. The network was well-segregated into distinct yet interconnected clusters. The silhouette value (S), introduced by Rousseeuw (1987), was employed to assess clustering quality by evaluating network homogeneity. A silhouette value (S) greater than 0.7 is considered to reflect a high level of clarity in the overall configuration (Zhao, Alsagoff, Abdullah, & Wu, 2023). In this study, the silhouette score was 0.9511, signifying robust and well-founded clustering results. To highlight the unique characteristics of each cluster, noun phrases were extracted using the log-likelihood ratio (LLR) algorithm from the keyword lists of documents citing a specific cluster. The LLR algorithm compares the likelihood of a keyword appearing in one cluster relative to another (Zhao, Ke, Zuo, Xiong, & Wu, 2020). This algorithm was selected for its effectiveness in identifying the uniqueness and relevance of terms within a cluster (Chen, Ibekwe, & Hou, 2010). Table 9 summarizes each cluster's ID, size, silhouette value (*S*), mean (year), and LLR. Each keyword is followed by its corresponding LLR and *P* value, with the LLR denoting the significance of a keyword within its cluster compared with others. A higher LLR value of a keyword signifies its greater importance and uniqueness within the cluster. The *P* value denotes statistical significance, with smaller values suggesting stronger relevance of the keyword to the cluster. Typically, $P < 0.05$ is considered significant, suggesting that the keyword's importance within the cluster is not arbitrary.

Table 9. Statistical analysis of keyword clustering information

ID	Size	Silhouette	Mean (year)	LLR
0	51	0.983	2014	media convergence (14.1, 0.001); newsroom integration (4.69, 0.05); new media (2.98, 0.05)
1	47	0.904	2016	social media (8.04, 0.005); current technology of electronic government (4.15, 0.05); delphi method (4.15, 0.05)
2	39	0.964	2008	agenda setting (5.76, 0.05); convergence and de-convergence (5.76, 0.05); discourse analysis (5.76, 0.05)
3	34	0.929	2012	digital media (15.23, 0.01); new media (7.19, 0.01); convergence journalism (3.76, 0.1)
4	20	0.895	2015	journalism (6.1, 0.05); European public service broadcasting (5.66, 0.05); newsroom culture (5.66, 0.05)
5	19	0.966	2019	gambling (6.55, 0.05); cognitive bias (6.55, 0.05); video games (6.55, 0.05)
6	18	0.943	2018	social media platform preference (7.1, 0.01); digital media integration (7.1, 0.01); b2b engagement (7.1, 0.01)
7	15	0.978	2016	literary analysis (7.32, 0.01); advertising (7.32, 0.01); customer relationship management (7.32, 0.01)
8	14	0.99	2015	online social support (8.19, 0.005); convergence of mass and interpersonal communication (8.19, 0.005); provider-patient interaction (8.19, 0.005)
9	14	0.903	2011	Japan (5.88, 0.05); south Africa (5.88, 0.05); India (5.88, 0.05)
10	8	0.992	2014	Internet (8.6, 0.005); media companies (8.6, 0.005); mergers and acquisitions (8.6, 0.005)
11	7	0.999	2012	mass media (11.64, 0.001); policy and planning (7.57, 0.01); traditional communication (7.57, 0.01)

A clustering timeline map was generated based on the clustering results (Fig. 6), allowing for the observation of each cluster's temporal span, the relationships between different clusters, and the evolution of keywords within each cluster. These 12 clusters can be categorized into five primary research directions, as summarized below:

1) *Media Convergence and Journalism Studies* (#0 Media convergence, #2 Agenda setting, #4 Journalism, #11 Mass media): Erdal (2009) examined the concept of content repurposing in cross-media journalism, proposing a typology of content adaptation through the analysis of cross-platform examples. Yuan (2011) used a media repertoire approach to explore news consumption patterns in a convergent media environment, demonstrating how multi-platform usage influences news agendas and audience preferences. Moretzsohn (2009) addressed the challenges digital technologies pose to traditional journalistic ethics, focusing on the limits of news transparency and content control. This category focuses on the impact of media convergence on journalism, particularly in cross-media storytelling (Erdal, 2009; Martins, 2012, 2015), news agenda setting (Yuan, 2011), ethics (Baranova, Anikeeva, Shiryaeva, Caselles, & Shnaider, 2022; Moretzsohn, 2009), and journalism education and practice (Ittefaq, Ejaz, Fahmy, & Sheikh, 2021; Larrondo Ureta & Peña Fernández, 2018). It explores the transformation of traditional mass media content, such as TV series, documentaries, and radio, from the perspective of media convergence (Ajetunmobi & Lasisi, 2022; Perez, 2023; Qu, 2023).

2) *Digital and Social Media Studies* (#1 Social media, #3 Digital media, #6 Social media platform preference): Bruce, Keelson, Amoah, and Egala (2023) investigated how the integration of social media improves the performance and sustainability of manufacturing SMEs in developing countries, offering both practical and theoretical recommendations. Ahmed et al. (2022) introduced a blockchain-based video-sharing system that utilizes smart contracts and cryptographic techniques to enhance content security and reliability. Hackley and Hackley (2019) analyzed the transformation of brand advertising in the media convergence era, providing an analytical framework for brand communication. This category primarily focuses on the advancement of digital media from the perspective of media convergence, covering areas such as social media (Bruce, Keelson, Amoah, & Egala, 2023; Goldberg et al., 2022; Yadukrishnan, Kumar, & Ihejirika, 2023), video streaming (Ahmed et al., 2022; Perez, 2023), and digital advertising (Hackley & Hackley, 2019; Ma, 2021; Zomeno & Blay-Arraez, 2021). It examines user preferences and behaviors across various social media platforms (Balsebre-Torroja et al., 2023; Skripcova & Hladikova, 2022; Wang et al., 2023).

3) *Internet and Online Interaction Studies* (#8 Online social support, #10 Internet): This category focuses on online communication, the functions of the Internet, and the analysis of social interaction and support systems on digital platforms. It also examines the relationship between media convergence and the growth of Internet technologies (Miao, Li, & Gao, 2021), as well as their effects on specific social groups and large media corporations (Pushpabai, 2010; Sullivan & Jiang, 2010). It investigates the impact of the Internet on users (Nettleton, Burrows, & O'Malley, 2005) and its influence on public opinion and policy-making from the perspective of media convergence (Yang, 2016; Zhu, Pan, & Shan, 2018).

4) *Cultural and Regional Studies* (#7 Literary analysis, #9 Japan): This category examines media convergence phenomena within specific national and cultural contexts, such as China (Pan, 2023; Wang et al., 2023; Zhao & Ye, 2023), Japan (Fan, Miyamori, Tanaka, & Li, 2007; Ishida & Ito, 2019), India (Mishra, 2016; Pathak & Biswal, 2021; Pushpabai, 2010), and South Africa (Turner, 2023). It also includes cross-national perspectives (Menon, 2006) and explores topics related to literary and cultural production within the framework of media convergence (Avalle, 2021; Betiang & Akpan, 2018).

5) *Gambling and Entertainment Studies* (#5 Gambling): This category explores media convergence in digital gaming, focusing on emerging trends such as "gamblification" (Macey & Hamari, 2020), cross-media narratives, and the cultural experience of gaming (Fernandez Ruiz & Garcia-Reyes, 2021; Freire Sanchez, Gracia-Mercade, & Vidal-Mestre, 2022). It also examines the role of digital value chains in the converging film and gaming industries (Betzler & Leuschen, 2021) and the strong connection between social media and digital gaming (Liu, 2019).

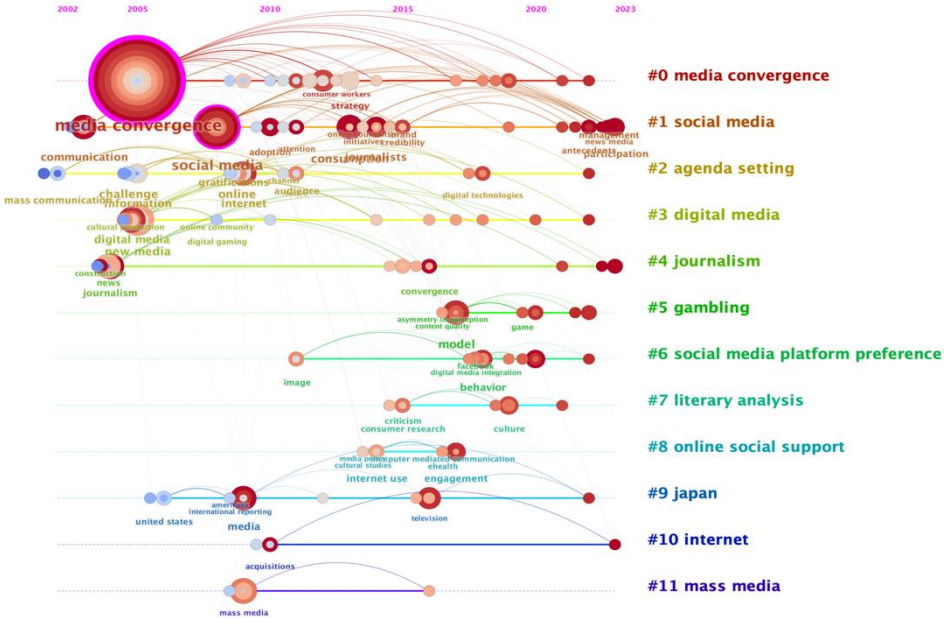

Figure 6. Clustering timeline map

3.2.3 Keyword Emergence Analysis

Using CiteSpace software, a keyword burst map was generated for media convergence research (Fig. 7), which revealed the dynamic surge in the frequency of specific keywords over specific periods. These burst keywords corresponded to the main topics or evolving trends in the media convergence field, reflecting shifts in research focus and highlighting innovative literature. Notably, such analysis helps determine the field's developmental trajectory by identifying which topics gained sudden prominence, how long they remained in focus, and how they shaped the overall discourse. Figure 7 presents the changes in the top 25 keywords during 2000–2024. The "Year" denotes when the keyword first appeared, "Strength" denotes the burst intensity, and "Begin" and "End" represent the start and end times when the keyword became a research hotspot. In Fig. 7, red lines signify the keyword's burst period, while blue lines denote the overall timeline of the keyword within the research, suggesting that the keyword had a relatively steady or low frequency during this period, without a noteworthy burst.

The results demonstrated that "mass communication" and "communication" were early burst keywords, upholding fairly high prominence during 2002–2009, suggesting that the early stages of media convergence research focused on core theories of communication studies. During this period, the keyword "new media" appeared with a high burst strength (2.54), depicting the advent of new media as a research hotspot, stimulated by the extensive adoption of Internet technology. This phase was characterized by research exploring how the increasing adoption of Internet technology reshaped the media landscape.

Later, the research focus slowly shifted toward the effect of digital media and evolving technologies on communication. In the mid-research period (2009–2018), keywords like "Internet," "Internet use," "Broadcast journalism," and "newsroom integration" burst, underscoring the profound effect of the Internet on news production during this time. Under the dual pressures of media convergence and digital disruption, the academic community started focusing on the revolution of traditional broadcast journalism. Specifically, the burst of "newsroom integration" highlights the academic focus on organizational strategies that aligned journalistic practices with digital-first priorities, driven by the pressures of media convergence and digital disruption.

Starting in 2018, the bursts of keywords like "Digital media integration" and "digital technologies" highlighted the continued impact of digital technology and media integration. As technology progressed, the integration of digital media became a key research area. Social media represented the advent of social media platforms and their substantial impact on communication practices. Recently, since 2020, the emergence of terms such as "consensus mechanism" in media convergence research highlights a shift toward more specialized and interdisciplinary approaches. Besides, with the swift advancement of artificial intelligence (AI) technology, AI is considered the core driving force behind the future expansion of media technologies, rendering it an emerging focus that will certainly become a crucial area of interest in media convergence research.

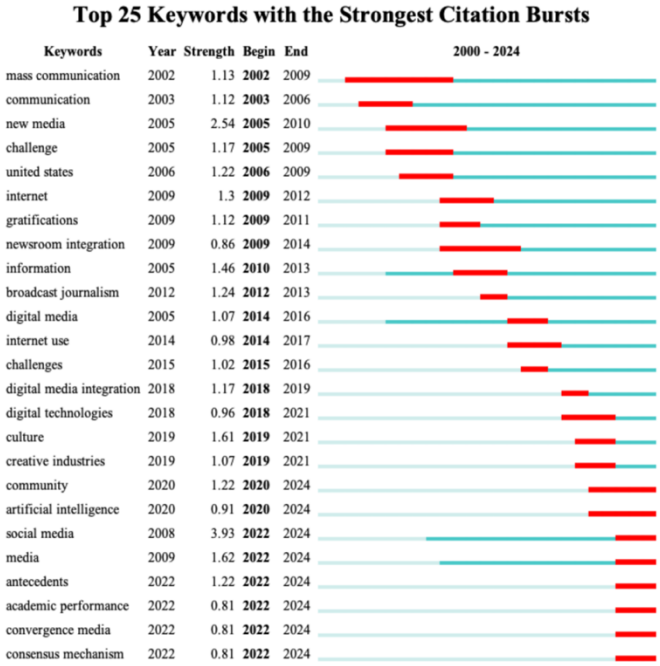

Figure 7. Keywords burst map

3.3 Time Evolution Analysis

Based on the analysis of annual publication volume and citation trends (Table 10), the development over the past decade can be broadly divided into three distinct phases. The high-frequency keywords for each phase are summarized in Figure 8.

3.3.1 2000–2009 (Exploration and Accumulation Period)

During this period, the number of publications remained relatively low but showed steady growth, increasing from 1 paper in 2000 to 9 papers in 2009. Citation counts exhibited considerable fluctuations, with some years (such as 2004 and 2005) witnessing significantly high citation counts (192 and 228 citations, respectively), while others (such as 2002 and 2006) recorded low citation counts. It is noteworthy that these citations were concentrated in a limited number of papers. Analysis of the C/P and C/CP ratios revealed that a few highly influential papers played a key role in driving overall citation performance during this period. Keyword analysis indicated that terms such as "communication" and "mass communication" remained prominent throughout this time. High-frequency keywords, including "new media," "journalism," and "technology," pointed to several important research areas. As digital technology advanced, increasing attention was given to the role of new media in information dissemination, public opinion formation, and the transformation of the journalism industry. At the same time, research on media convergence technology within journalism began to emerge.

3.3.2 2010–2018 (Steady Growth Period)

During the period from 2010–2018, the number of publications grew steadily, with the highest number of publications (20) in 2016. Over the nine years, a total of 114 papers were published, averaging 12.67 papers per year—an increase compared to the period ranging from 2000–2009. The overall citation count for this period was higher than the first, with 2011 reaching a peak of 219 citations. However, the most-cited single paper in this period had a substantially lower impact in comparison to those from the earlier period. The impact metrics remained relatively stable, with the h-index consistently between 4 and 6 and the g-index between 8 and 10. This suggests that media convergence research gained academic traction and influence during this time but had not yet produced a significant number of highly cited papers. Overall, the academic impact remained moderate, with attention focused on a few key papers. The high-frequency keywords from this period closely overlapped with those from the previous one, indicating that researchers continued to build on the themes that emerged earlier, particularly in areas such as journalism, new media, and technology. The increasing prevalence of the Internet significantly influenced news production. Social media and television became prominent keywords as researchers examined the transformation of traditional broadcast journalism under the influence of media convergence and digital disruption, while also exploring the rise of social media.

3.3.3 2019–2024 (Rapid Expansion Period)

During this period, the number of publications saw a significant increase, with a total of 132 papers published over six years, averaging 22 papers per year. However, citation counts, particularly for highly cited papers, declined compared to the previous period. For instance, while 2022 saw the highest number of publications, with 32 papers, the total citations for that year only reached 100. The C/P and C/CP values were 3.13 and 4.76, respectively, lower than in most other years. Despite this, the diversification of research themes and the delayed citation cycle suggest that this does not indicate a decline in the field's academic impact. Instead, it reflects the continuous growth in the volume and increasing diversity of topics in media convergence research. During this time, the rise of social media platforms had a profound impact on communication practices. As a central force in cross-platform communication, social media became a focal point in media convergence studies. Researchers examined how these platforms interact with, and sometimes compete against, traditional media, while also shaping new communication models within the evolving media ecosystem. Subjects related to the use of platforms such as Facebook and Twitter also gained prominence. Furthermore, discussions on cross-media (the distribution of related content across different platforms) and multimedia (the integration of multiple media forms within a single platform or medium) began to emerge within the media convergence framework.

Table 10. Annual publication and citation metrics

Year	TP	%	NCP	TC	C/P	C/CP	h-index	g-index
2024	18	6.57	1	1	0.06	1	1	1
2023	27	10.55	16	40	1.48	2.50	4	5
2022	32	12.50	21	100	3.13	4.76	5	8
2021	22	8.59	20	77	3.50	3.85	5	6
2020	13	5.08	8	74	5.69	9.25	5	8
2019	20	7.81	17	100	5.00	5.88	6	9
2018	12	4.69	9	71	5.92	7.89	5	8
2017	14	5.47	10	80	5.71	8.00	3	8
2016	20	7.81	16	128	6.40	8.00	4	10
2015	8	3.13	6	168	21.00	28.00	6	8
2014	11	4.30	10	115	10.45	11.50	4	10
2013	14	5.47	14	90	6.43	6.43	5	9
2012	12	4.69	12	121	10.08	10.08	5	10
2011	10	3.91	9	219	21.90	24.33	5	10
2010	13	5.08	10	79	6.08	7.90	5	8
2009	9	3.52	7	122	13.56	17.43	4	9
2008	5	1.95	5	125	25.00	25.00	4	5
2007	3	1.17	2	20	6.67	10.00	2	3
2006	1	0.39	1	2	2.00	2.00	1	1
2005	2	0.78	2	192	96.00	96.00	2	2
2004	3	1.17	2	228	76.00	114.00	2	3
2003	2	0.78	2	105	52.50	52.50	2	2
2002	1	0.39	1	1	1.00	1.00	1	1
2001	1	0.39	1	5	5.00	5.00	1	1
2000	1	0.39	1	24	24.00	24.00	1	1

Note: TP=Total Papers, NCP=Number of Cited Papers, TC=Total Citations, C/P=Citations per paper, C/CP=Citations per Cited paper

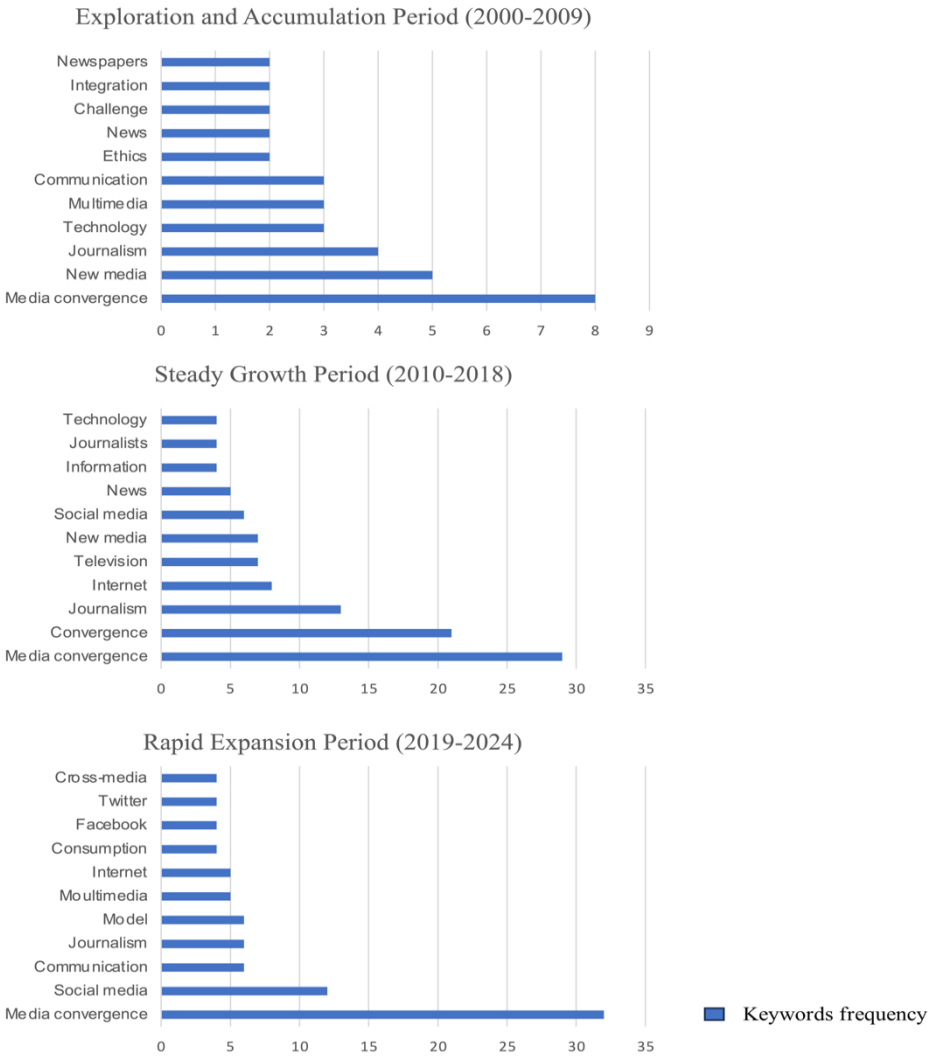

Figure 8. Time evolutionary trend of media convergence

4. Conclusion

This study demonstrates that academic research on media convergence has been steadily increasing throughout the twenty-first century, although the growth rate remains relatively modest. Furthermore, the distribution of impact within the field is uneven, with a small number of high-quality papers making a significant academic contribution. While Brazilian Journalism Research leads with the highest number of publications (8 papers) related to media convergence, Information Communication & Society stands out with 3 papers, which have received a total of 178 citations. These research papers cover 45 distinct subjects, with the most prominent being “communication”. On a global scale, 63 countries have contributed to media convergence research, with the United States, China, and the United Kingdom emerging as the top three contributors in terms of published research. The most productive institutions in this field include Curtin University (Australia), followed by the University of London (UK), the University of Neuchatel (Switzerland), and the University of Wisconsin System (United States). However, collaboration among countries, institutions, and authors in the field of media convergence remains relatively weak and presents opportunities for further growth and development.

The co-occurrence analysis of keywords demonstrates that, since the beginning of the twenty-first century, media convergence has emerged as a central concept, emphasizing the integration and interaction among various media platforms. The rise of new media, particularly social media and digital platforms, serves as both a significant backdrop for media convergence and a primary research focus. The transformation of journalism and television industries due to media convergence has emerged as a key area of contemporary research. Technology and audience research have also gained prominence within the field. Using keyword clustering techniques, this study organized media convergence research into 12 clusters, which are then grouped into five major research directions: Media Convergence and

Journalism Studies, Digital and Social Media Studies, Internet and Online Interaction Studies, Cultural and Regional Studies, and Entertainment Studies.

From the perspective of literature development patterns, media convergence research can be divided into three distinct phases: the Exploration and Accumulation Period (2000–2009), the Steady Growth Period (2010–2018), and the Rapid Expansion Period (2019–2024). During the first phase, the focus was on foundational communication theories, particularly mass communication and the emergence of new media. As digital technologies advanced, "new media" gradually became a central research focus. In the second phase, the widespread adoption of the Internet triggered a transformation in news production, with studies exploring the integration of new media, social media, and traditional journalism. In the third phase, research broadened to include topics such as consensus mechanisms, academic performance, and antecedents, marking a shift toward more interdisciplinary and specialized areas, alongside a growing emphasis on AI applications and model development.

By reviewing the historical development of media convergence and analyzing the current media landscape, this study proposes several potential future research trends in the field. First, as artificial intelligence (AI) increasingly influences content creation, editing, and distribution, the integration of AI with media convergence is likely to become a central area of research. Second, the widespread implementation of 5G technology and the Internet of Things (IoT) will enable faster network speeds and broader device connectivity, accelerating the media convergence process. The impact of these emerging technologies on content production, communication channels, and audience experiences may become a key focus in future media convergence studies. Further, as globalization continues to rise, media convergence research is expected to place greater emphasis on the challenges and opportunities of cross-cultural communication. A critical area of investigation will also be the balance between the influence of global media conglomerates and localized media.

Based on the findings of this study, several practical applications and policy recommendations are proposed to address gaps in current research and fully harness the potential of media convergence studies. First, policymakers and media organizations are encouraged to prioritize and promote international and interdisciplinary collaboration to enhance global knowledge exchange and innovation within the field of media convergence. Second, to bridge the gap between academic research and industry practices, it is recommended that media organizations collaborate with research institutions to jointly develop technologies and strategies that integrate artificial intelligence (AI), 5G technologies, and the Internet of Things (IoT) into content production and distribution processes. Furthermore, national governments and regulatory bodies should consider updating media policies to align with the dynamic nature of media convergence. This includes fostering equal access to digital infrastructure, safeguarding content diversity, and supporting the sustainable development of local media amidst global competition. Lastly, as technology evolves, policy frameworks must continually adapt to protect user data, combat misinformation, and maintain public trust.

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Data sharing statement

No additional data are available.

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